

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
**DAVID S. HARPER**  
**MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP**  
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**MAR 29 2006**

DUE DATE: **5-27-06**  
 BY: **AB 10Y**

**PCT**

**NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION**

(PCT Rule 44.1)

Applicant's or agent's file reference <b>05-222-PCT</b>	Date of mailing (day/month/year) <b>27 MAR 2006</b>
International application No. <b>PCT/US05/04043</b>	International filing date (day/month/year) <b>07 February 2005 (07.02.2005)</b>
Applicant <b>ARIZONA BOARD OF REGENTS</b>	

1.  The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70.

For more detailed instructions, see the notes on the accompanying sheet.

2.  The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3.  With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

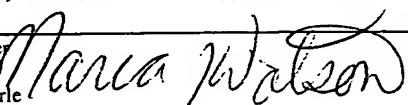
See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/ US  
 Mail Stop PCT, Attn: ISA/US  
 Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 Facsimile No. (571) 273-3201

Authorized officer

Jennifer Ione Marle

Telephone No. (571) 272-1600



(See notes on accompanying sheet)

PATENT COOPERATION TREATY

**PCT**

**INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 05-222-PCT	<b>FOR FURTHER ACTION</b>	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US05/04043	International filing date ( <i>day/month/year</i> ) 07 February 2005 (07.02.2005)	(Earliest) Priority Date ( <i>day/month/year</i> ) 05 February 2004 (05.02.2004)
Applicant ARIZONA BOARD OF REGENTS		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

- a. With regard to the language, the international search was carried out on the basis of:



the international application in the language in which it was filed.



a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

- b.  With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2.  Certain claims were found unsearchable (See Box No. II)

3.  Unity of invention is lacking (See Box No. III)

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.



b.  none of the figures is to be published with the abstract.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US05/04043

**Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)**

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

- a. type of material
- a sequence listing  
 table(s) related to the sequence listing
- b. format of material
- on paper  
 in electronic form
- c. time of filing/furnishing
- contained in the international application as filed  
 filed together with the international application in electronic form  
 furnished subsequently to this Authority for the purposes of search
2.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments: It is noted that the sequence listing does not provide for any substitutions or modifications to the sequences. Nor are there any comment fields that would provide for any substitutions or modifications to the sequences.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/04043

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: C07K 5/00( 2006.01),7/00( 2006.01),16/00( 2006.01),17/00( 2006.01);A61K 38/00( 2006.01),38/04( 2006.01)

USPC: 530/324,328

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 530/324,328

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,248,356 B1 (TRACEY, et al.) 19 June 2001 (19.06.2001), entire document, especially col. 3, lines 10-39.	13-16
A	Yamoto, et al., Deglycosylation of Serum Vitamin D3-binding Protein Leads to Immunosuppression in Cancer Patients, Cancer Research, June 15, 1996, 56, pp. 2827-2831.	1-16
A	US 6,344,445 B1 (GRIFFITH, et al.) 02 February 2002 (02.02.2002), entire document, see specifically col. 9; lines 5-23.	13-16
A	WO 97/23613 (CELLTECH THERAPEUTICS LTD.) 3 July 1997 (03.07.1995), entire document, especially 2-3.	13-16

Further documents are listed in the continuation of Box C.

See patent family annex.

Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

06 March 2006 (06.03.2006)

Date of mailing of the international search report

27 MAR 2006

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Faxsimile No. (571) 273-3201

Authorized officer

Jennifer Ione Harle

Telephone No. (571) 272-1600

10/588431  
IAP11 Rec'd PCT/PTO 04 AUG 2005

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US05/04043

Continuation of B. FIELDS SEARCHED Item 3:  
Sequence Search GenCore version 5.1.7 (SEQ ID NOS 1-5), STN - Registry (Sequences 1-5), Embase, Biosis, CaPlus, Medline, USPatFull, Medline, SciSearch, Toxcenter, West (USPT, PGPB,DWPI)

**PATENT COOPERATION TREATY**

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:  
DAVID S. HARPER  
MCDONNELL BOEHNNEN HULBERT & BERGHOFF LLP  
300 SOUTH WACKER DRIVE  
SUITE 3100  
CHICAGO, IL 60606

MAR 29 2006

DUE DATE: 06/27/06  
BY: AC

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference  05-222-PCT		Date of mailing (day/month/year)  <b>27 MAR 2006</b>
International application No.  PCT/US05/04043	International filing date (day/month/year)  07 February 2005 (07.02.2005)	Priority date (day/month/year)  05 February 2004 (05.02.2004)
International Patent Classification (IPC) or both national classification and IPC  IPC: Please See Continuation Sheet USPC: 530/324.328		
Applicant  ARIZONA BOARD OF REGENTS		

1. This opinion contains indications relating to the following items:

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application   |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application  |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US  Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion  06 March 2006 (06.03.2006)	Authorized officer  <i>Jennifer Lone Harle</i> Jennifer Lone Harle Telephone No. (571) 272-1600
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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US05/04043

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

- the international application in the language in which it was filed  
 a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- a sequence listing  
 table(s) related to the sequence listing

b. format of material

- on paper  
 in electronic form

c. time of filing/furnishing

- contained in the international application as filed.  
 filed together with the international application in electronic form.  
 furnished subsequently to this Authority for the purposes of search.

3.  In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

It is noted that the sequence listing does not provide for any substitution or modifications to the sequences. Nor are there any comment fields that would provide for any substitutions or modifications to the sequences.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US05/04043

**Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims <u>1-19</u>	YES
	Claims <u>NONE</u>	NO
Inventive step (IS)	Claims <u>1-19</u>	YES
	Claims <u>NONE</u>	NO
Industrial applicability (IA)	Claims <u>1-19</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-19 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest SEQ ID NOS 1-5.

Claims 1-19 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

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IAP11 Rec'd PCT/US05/04043  
International Application No. PCT/US05/04043WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

PCT/US05/04043

**Box No. VIII Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claims 2-19 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 2-12 indefinite for the following reason(s): they are broader than claim 1 because claim 1 merely consists of SEQ ID NOS. 1-5, i.e. can be only those proteins/peptides and nothing else. The claim does not allow for any substitutions or modifications as written nor does the supporting sequence listing, as there are no comments or modifications to those sequences as listed in the paper copy. This would include glycosylation of a threonine.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US05/04043

**Supplemental Box**  
In case the space in any of the preceding boxes is not sufficient.

Continuation of IPC:  
C07K 5/00( 2006.01),7/00( 2006.01),16/00( 2006.01),17/00( 2006.01);A61K 38/00( 2006.01),38/06( 2006.01)